

AMENDMENTS TO THE CLAIMS

Without prejudice, please amend claims 1-3 and 5-9, and add new claims 10-14 so that the claims read as follows:

1. (Currently Amended) A stereolithographic method for forming a stereolithographic three-dimensional object by ~~means of~~ sequentially repeating, until a predetermined stereolithographic three-dimensional object is formed, optical building processes of exposing a surface of a photocurable resin composition by way of a planar plotting mask ~~under control~~ to thus form an optically-cured resin layer having a predetermined cross-sectional profile pattern; applying a photocurable resin composition ~~for one~~ layer over the optically-cured resin layer; and exposing the surface of the photocurable resin composition to light by way of the planar plotting mask ~~under control~~, to thus further form an optically-cured resin layer having a predetermined cross-sectional profile pattern, the method comprising:

using a planar plotting mask, which can continuously change a mask image, as [[a]] the planar plotting mask;

performing a building operation of continuously moving the planar plotting mask with reference to the surface of the photocurable resin composition during at least one of the optical building processes and of exposing the surface of a photocurable resin composition to light by way of the planar plotting mask while continuously changing a mask image of the planar plotting mask in accordance with a cross-sectional profile pattern of an optically-cured resin layer to be formed and in synchronism with movement of the planar plotting mask, to thus form an optically-cured resin layer having a predetermined cross-sectional profile pattern; and

performing the optical building ~~processes~~ operation such that a computer is utilized to generate mask images to attenuate a visual noticeability of boundary areas among adjacent plotted areas in the optically-cured resin layer ~~become unnoticeable~~ in a finally-obtained stereolithographic three-dimensional object.

2. (Currently Amended) The stereolithographic method according to claim 1, wherein, in order to attenuate a visual noticeability of ~~make unnoticeable~~ the boundary areas~~area~~ between the

adjacent plotted areas in the optically-cured resin layer in a finally-obtained stereolithographic three-dimensional object, at least one operation selected from the group consisting of operations (i) to (iii) provided below is performed:

(i) operation for making a total intensity of light radiated onto boundary areas among adjacent plotted areas in an optically-cured resin layer equal or analogous to the intensity of light radiated onto areas other than the boundary areas;

(ii) operation for making ~~at~~ the shape of the boundaries between the adjacent plotted areas in the optically-cured resin layer curved~~curve~~; and

(iii) operation for staggering positions of the boundary areas among the adjacent plotted areas in the optically-cured resin layer in vertically-stacked optically-cured resin layers.

3. (Currently Amended) The stereolithographic method according to claim 1, wherein the planar plotting mask is a planar plotting mask[[,]] in which a plurality of micro-optical shutters capable of blocking or allowing transmission of light into microdot areas are arranged in a planar manner,~~is used as the planar plotting mask~~; and

the surface of the photocurable resin composition is exposed to light while a mask image is continuously changed in accordance with a cross-sectional profile pattern to be formed by means of the plurality of micro-optical shutters during continuous movement of the planar plotting mask.

4. (Original) The stereolithographic method according to claim 3, wherein the planar plotting mask is a planar plotting mask where a liquid-crystal shutter or a digital micromirror shutter is arranged in a planar manner.

5. (Currently Amended) A stereolithographic apparatus comprising:
a photocurable resin composition supply means for sequentially supplying a photocurable resin composition of one layer over a mount table or an optically-cured resin layer;
a light source;

a planar plotting mask capable of continuously changing a mask image[;], ~~the stereolithographic apparatus being configured to moving means for continuously moving~~ the planar plotting mask with respect to a surface of the photocurable resin composition; and ~~a computer containing means for information for~~ continuously changing the mask image of the planar plotting mask in synchronism with movement of the planar plotting mask; and, ~~wherein~~

~~the apparatus is configured to generate mask images with the computer to attenuate a visual noticeability of means for making unnoticeable~~ boundary areas among adjacent plotted areas of optically-cured resin layers within a finally-obtained stereolithographic three-dimensional object.

6. (Currently Amended) The ~~stereolithographic three-dimensional optical~~ apparatus according to claim 5, wherein ~~the apparatus is configured to attenuate the visual noticeability of the boundary areas by being configured to perform at least one operation selected from the group consisting of the means for making unnoticeable boundary areas among adjacent plotted areas of optically-cured resin layers within a finally-obtained stereolithographic three-dimensional object is means for performing at least one of~~ operations (i) to (iii) provided below:

(i) operation for making a total intensity of light radiated onto boundary areas among adjacent plotted areas in an optically-cured resin layer equal or analogous to the intensity of light radiated onto areas other than the boundary areas;

(ii) operation for making ~~a~~ the shape of the boundaries between the adjacent plotted areas in the optically-cured resin layer ~~curvedeurve~~; and

(iii) operation for staggering positions of the boundary areas among the adjacent plotted areas in the optically-cured resin layer in vertically-stacked optically-cured resin layers.

7. (Currently Amended) The ~~stereolithographic three-dimensional optical~~ apparatus according to claim 5, wherein the planar plotting mask is a planar plotting mask in which a plurality of micro-optical shutters capable of blocking or allowing transmission of light into microdot areas are arranged in a planar manner.

8. (Currently Amended) The stereolithographic three-dimensional-optical apparatus according to claim 5, wherein the planar plotting mask is a planar plotting mask where a liquid-crystal shutter or a digital micromirror shutter is arranged in a planar manner.

9. (Currently Amended) The stereolithographic three-dimensional-optical apparatus according to claim 5, further comprising a light-condensing lens which is interposed between a light source and the planar plotting mask and can be continuously moved in synchronism with the planar plotting mask; and a projection lens which is interposed between the planar plotting mask and the surface of the photocurable resin composition and which can be continuously moved in synchronism with the planar plotting mask.

10. (New) The stereolithographic method according to claim 1, wherein the attenuation of the visual noticeability of the boundary areas between the adjacent plotted areas in the optically cured resin layer in a finally-obtained stereolithographic three-dimensional object results in the boundary areas being unnoticeable to the human eye.

11. (New) The stereolithographic method according to claim 1, wherein, in order to attenuate a visual noticeability of the boundary areas between the adjacent plotted areas in the optically-cured resin layer in a finally-obtained stereolithographic three-dimensional object, an operation is performed for making a total intensity of light radiated onto boundary areas among adjacent plotted areas in an optically-cured resin layer equal or analogous to the intensity of light radiated onto areas other than the boundary areas.

12. (New) The stereolithographic method according to claim 1, wherein, in order to attenuate a visual noticeability of the boundary areas between the adjacent plotted areas in the optically-cured resin layer in a finally-obtained stereolithographic three-dimensional object, an operation is performed for making a shape of the boundaries between the adjacent plotted areas in the optically-cured resin layer curved.

13. (New) The stereolithographic method according to claim 1, wherein, in order to attenuate a visual noticeability of the boundary areas between the adjacent plotted areas in the optically-cured resin layer in a finally-obtained stereolithographic three-dimensional object, an operation is performed staggering positions of the boundary areas among the adjacent plotted areas in the optically-cured resin layer in vertically-stacked optically-cured resin layers.

14. (New) The stereolithographic apparatus according to claim 5, wherein the apparatus is configured for the attenuation of the visual noticeability of the boundary areas among the adjacent plotted areas in the optically cured resin layer in a finally-obtained stereolithographic three-dimensional object such that the boundary areas are unnoticeable to the human eye.